

## When votes count

From Sandy Johnson

Ian Stewart's article on the mathematics of voting seems to take pleasure in the fact that no voting system is perfect, while failing to acknowledge that the relative merits of voting systems should be investigated and qualitatively assessed (1 May, p 28).

To my mind, the voting system here in Australia has several advantages, not least of which is that preference voting means every vote counts. You can vote for a minor party, assured that if it turns into a race between the two major parties then your order of preference, and your vote, counts.

In addition, enforcing mandatory voting means that the result is truly representative of the total electorate. Political parties must attempt to appeal to everyone – as everyone will vote. This encourages politicians to consider the effects of policies over the whole socioeconomic spectrum. With this system

everyone votes, and every vote counts.

Mandatory voting affects results far more than the exceptional cases given prominence by Stewart's article. He would also do well to consider the preferential, proportional system used in the Australian Senate, and the advantages that brings to a government's second house.

No system is perfect, but some are a lot better than others.

Freshwater, New South Wales, Australia

From David Goddard

Ian Stewart predicts an ordering paradox arising from a preferential voting system. It is not a paradox at all; it is merely a dead heat. Each national candidate has received an equal number of first, second and third preference votes, so surely it would be something of a flaw if the system were to identify a victor in such circumstances.

While a draw would provide a practical challenge were it to



happen, with a realistic number of voters such a result becomes vanishingly unlikely.  
Perth, UK

From David Monkman

There are difficulties in turning the total national party votes into a proportional number of MPs for each party. The solution lies in giving each MP multiple votes when they come to vote in parliament. The number of votes a particular MP could wield would be calculated by taking all the votes for their party, from every constituency, and sharing them evenly between all its MPs.

Every party that had at least one MP elected would be proportionally represented, and the important MP-constituency link is maintained. Vitality, voter turnout would probably increase, because no vote, even in a safe seat, would be wasted. Above all else the result would be fair.

Ramsey St Mary's, Cambridgeshire, UK

## On biodiversity

From Gareth Griffith, Institute of Biological, Environmental and Rural Sciences

It is a major oversight that your article on biodiversity mentions micro-organisms only fleetingly (24 April, p 32).

Furthermore, you report that "our best estimates so far give the number of species between 1.4 and 1.9 million". These numbers ignore David Hawksworth's widely accepted

estimate of 1.5 million species of fungi, with the number of already named species closer to 100,000 than your value of 70,000.

All the larger organisms upon which this feature focused so closely have intimate interactions with numerous microbes. Thus, for each plant species that goes extinct, diverse microbial symbionts may also be doomed.

As Tom Currey stated: "If the last blue whale choked to death on the last panda it would be disastrous but not the end of the world. But if we accidentally poisoned the last two species of ammonia oxidisers, that would be another matter. It could be happening now and we wouldn't even know" (*Nature Reviews Microbiology*, vol 4, p 488).

There is more to biological conservation than simply animals and plants.

Aberystwyth, Ceredigion, UK

The editor writes:

■ There is no central catalogue for recording species descriptions and there may be considerable double counting, hence the current estimate. Microbial numbers are particularly uncertain: the American Society of Microbiology published a report in 2007 questioning the notion of species at this level, given the degree of horizontal gene transfer.

From John Morris

Your article on biodiversity fails to mention the effects of geology, topography and soils. While working in land development in North Borneo (now part of Malaysia) in the 1950s and 1960s, I saw aerial photographs of the natural forest prior to its destruction. It was possible to identify areas of land with particular soils by marking the boundaries of the different natural forest species groups. The forest species groups that occupied soils derived from basalts differed from those on soils derived from andesites,

## Enigma Number 1596

### Semi-detached

BOB WALKER

While Joe was in Hong Kong recently he bought a book of stamps with six stamps per page. From each page it was possible to extract a single stamp or block of stamps (each stamp still attached to at least one other) with any value from 15 up to the total value of the six stamps. Joe noticed that for most values this could only be achieved in just one way, but for each of four

1	2	X
4	6	Y

of the values it was possible to select a single stamp or a block of stamps in two ways.

What value were the stamps X & Y?

**WIN** £15 will be awarded to the sender of the first correct answer opened on Wednesday 23 June. The Editor's decision is final. Please send entries to Enigma 1596, New Scientist, Lacon House, B4 Theobald's Road, London WC1X 8NS, or to [enigma@newscientist.com](mailto:enigma@newscientist.com) (please include your postal address).

**Answer to 1590** Return to starter: The number is 693

**The winner** John Shrimpton, Kirkby-in-Furness, Cumbria, UK